U.S. Department of Labor   Office of Inspector General
Washington, D.C. 20210

Reply to the Attention of:

MAR 31 1998

MEMORANDUM FOR: J. DAVITT McATEER
                         Assistant Secretary for Mine Safety and
                             Health

FROM: CHARLES C. MASTEN
                         Inspector General

SUBJECT: Review of the Acquisition and Implementation
                         of Laptop Computer Technology
                         Mine Safety and Health Administration
                         Report No. 11-OEI-98-MSHA

This memorandum report presents the results of a review by the
Office of Inspector General (OIG), Office of Analysis Complaints
and Evaluations, of the acquisition and implementation of laptop
computer technology by the Mine Safety and Health Administration
(MSHA). The review, initiated in response to a congressional
referral, did not confirm the allegations that MSHA's actions in
procuring the computers were at variance with applicable rules
nor that the laptops were unsuitable for intended uses by the
agency's mine inspectors. However, the congressional
constituent's letter raised valid concerns with respect to the
time required to develop and program software applications,
distribute the laptops to the inspectors and provide training in
the technology. Our review of MSHA's laptop program indicated a
continuing need for a comprehensive implementation plan,
including the establishment of priorities and timetables, to
ensure that the goals of the program are achieved. In addition,
direct communications between inspectors, the project manager
and programmers as well as opportunities for inspectors
nationwide to share software applications, technology problems
and solutions could improve program efficiency and increase the
near term benefits of this investment.

The Assistant Secretary for Mine Safety and Health responded to:
our draft report on March 2, 1998, indicating full concurrence
with all of our recommendations and providing information on
improvements to the laptop program which have been initiated to
date. A copy of the Assistant Secretary's response is included
as an attachment to this memorandum.

I.   Background

The Assistant Secretary for Mine Safety and Health requested that OIG review the concerns raised in correspondence, dated August 2, 1996, from Congressman Daniel Schaefer. This report presents the results of the third in a series of reviews addressing the issues forwarded by the Congressman. Our review included interviews with selected MSHA personnel and analysis of procurement files, contracts and related documentation at MSHA's Arlington, Virginia procurement division. In addition, visits were made to MSHA field offices in Denver, CO; Norton, VA; Richlands, VA; Jasper, AL and Hueytown, AL to ascertain the progress and effectiveness of MSHA's laptop technology program. Our review was conducted in accordance with the Quality Standards for Inspections published by the President's Council on Integrity and Efficiency.

II. Review Results

The congressional constituent's complaint alleged that MSHA violated procurement rules in the acquisition of laptop computers for inspectors because MSHA had not fully justified the benefits of laptops before executing a major contract to purchase laptops for field inspectors. Moreover, the complaint asserted that problems with software development, training and the harsh environment of mining areas could preclude laptop use by the inspectors. Our review confirmed the details regarding the status of the testing program at the time of the procurement but did not identify any resulting infractions of procurement laws, regulations or rules. Subsequent pilot testing has supported the potential of the laptops to enhance the inspection program and provided evidence that environmental factors will not adversely impact the use of the computers. However, delays have been encountered and continue with respect to the development of software to automate inspection forms and access information sources, the issuance of laptops to the inspectors and related training. Effective planning and the establishment of priorities for the completion of the laptop program are required to ensure that MSHA realizes the anticipated benefits of the new technology.

A. Laptop Procurements

MSHA's acquisition of laptop computers for mine inspectors was accelerated over the agency's original plan and completed prior to final field testing. In FY 1994, MSHA established a committee of officials to make an assessment

of the various potential benefits of laptop computer use for inspectors and to determine hardware, software, and training requirements. The committee purchased a small number (24) of laptops for field testing. While testing was still ongoing, MSHA was informed by senior departmental officials that funding was available to purchase approximately 1,000 laptops. MSHA subsequently executed a contract in May 1995 to purchase the laptops, portable printers, software, and peripherals. Although a bulk laptop computer procurement had not been scheduled for FY 1995, MSHA officials were prepared, as funds became available, to make large-scale laptop acquisitions. MSHA is authorized to spend up to $10 million for the laptop computer program; expenditures through FY 97 for laptops, software, portable printers, modems and auxiliary items totaled approximately $4.4 million.

While conducting sufficient pilot testing prior to a substantial commitment of resources is preferable, whenever possible, MSHA's decision to expedite the purchase of the laptops in response to the unanticipated availability of funds did not violate either Department of Labor (DOL) or Federal procurement rules. MSHA did not represent to DOL or General Services Administration (GSA) officials that its laptop testing substantiated large scale purchases. Rather, our review indicates that MSHA conducted cost-benefit and other analysis supporting laptop computer use by inspectors prior to the agency's major purchase. We did not identify any procurement regulations or procedures specifically requiring the completion of field tests prior to substantial procurements of automated equipment.

Our review of the laptop computer acquisition did not identify evidence of non-compliance with any other procurement regulations. In this regard, analysis of DOL, MSHA and GSA procurement records confirmed that MSHA adhered to all Delegation of Procurement Authority requirements in effect for major technology acquisitions. Furthermore, MSHA utilized a contractor certified by the Small Business Administration as a minority owned small business (8a) and conducted required contracting and price negotiations.

Tests of the laptop computers indicate they are compatible with planned uses and the field conditions do not limit the effectiveness of the equipment as suggested in the constituent's complaint. The laptops provide resource

materials, such as regulations and violation histories, and blank copies of inspection forms. Accordingly, inspectors use the laptops prior to and following inspections in their Government vehicles, offices, hotel rooms or other areas away from extreme environmental mining conditions that could damage the equipment.

B.   Implementation of Laptop Technology

The constituent complaint is correct that implementation of laptop technology for MSHA inspectors has been prolonged and problematic. Distribution of laptops and related inspector training has proceeded slowly and opportunities for inspectors to contribute to the system planning and design process after the initial software releases or to exchange ideas with other users have been limited. Significant software design delays have also occurred, despite the fact that MSHA has pursued a much more limited laptop technology agenda than was originally envisioned. While inspectors who are using laptops responded favorably to our inquiries about the benefits and potential of the computers, these inspectors also expressed frustration that more laptop applications were not yet available.

1.   *Distribution of Laptops and Inspector Training*

As indicated in the congressional constituent's complaint, the distribution of the laptop computers to the inspectors and related training has extended over several years, limiting the near term benefits realized from this technology investment. Inspectors assigned to the four testing offices were provided with laptops in 1995 and received training within a relatively short period of time after the receipt of their laptops. These inspectors were, in general, satisfied with their training. Other inspectors received their laptops in FYs 96 or 97, and were provided training as scheduling permitted. To date, a significant number of inspectors have not received training due, in part, to program needs. In this regard, training for all metal and nonmetal inspectors had been scheduled for FY 1997 but was postponed in order to respond to rising industry accident levels.

2.   *Software Design*

Software design for the laptop computers has proceeded

slowly due to several factors, some of which have been addressed as system development proceeded. Issuance of software to the inspectors has been prolonged first, by the need for programming expertise not readily available within MSHA. Second, the agency did not initially dedicate sufficient resources to software development. Lastly, inspectors were not afforded an active role in design considerations and priorities. With the release of the Inspector's Portable Application for Laptops (IPAL) in September 1997, the inspectors have access to a variety of reference materials and several inspection forms but could significantly benefit from additional applications.

The problems and delays encountered with MSHA's early software releases, designated as the Inspector Laptop System (ILS), illustrate the importance of the programmers' expertise and clear project priorities. ILS applications provided in August 1995 to the four testing offices, Denver, Norton, Richlands and Mt. Hope, included the Federal Mine Safety and Health Act, agency regulations, the Program Policy Manual, electronic citation and order forms, and historical mine inspection results, accident and injury information by workgroups. The various ILS releases, particularly the first, were plagued with programming "bugs" and design flaws. These technical difficulties were primarily attributable to MSHA's reliance upon programmers whose principal area of expertise involved working in a mainframe environment rather than on personal computer/Windows-based database programming. The goal of releasing ILS software timely to meet immediate inspector needs was also delayed because separate systems for coal and metal/non-metal programs were required.

MSHA's laptop committee recognized the shortcomings of the ILS approach and in May 1995 established a new team to design the Inspector's Portable Application for Laptops (IPAL), but development of this system also encountered significant delays. The continuing delays occurred because MSHA remained committed to the concept of a fairly sophisticated database application but allocated insufficient programming resources to IPAL design during its first 18 months. In response, MSHA. hired two contract programmers in January 1997 whose participation greatly expedited development of

the new system. IPAL was released for testing on
September 15, 1997, and is expected to be a
significant improvement over ILS.

MSHA's programmers overcame several technological
challenges in developing the IPAL software. One of the
design objectives was to implement IPAL as a single
system for use by both Coal and Metal/Nonmetal mine
inspectors. This approach was chosen to simplify .
maintenance of the completed system. As a result, the
software had to be designed to accommodate significant
differences between the Coal and Metal/Nonmetal
management information systems and in the procedures
followed by inspectors in the two organizations.

Providing information on mines, inspections,
citations, health samples, and mine accidents and
injuries on the laptops was also technically
challenging since the data reside in three different
systems operating on two different mainframe
platforms. More challenging, however, was the
programming necessary to synchronize data input by
inspectors on the laptops with the data downloaded
from the mainframe systems.

In response to comments from inspectors who used the
pilot software (ILS), IPAL was designed to maintain
data for an entire district on each laptop. This
required the IPAL development team to develop the
software necessary to dynamically limit the data an
inspector sees to a work area, a field office, or the
district.

The volume of data to be moved also presented
challenges. The development team decided to
consolidate the data on MSHA's network to avoid the
need for field personnel to deal with the mainframe
computers. Data compression also was implemented to
maximize efficiency in the movement of the large
volume of data required for the IPAL system.

While the new system addresses some of the design
concerns identified with ILS, meeting the immediate
priorities of the inspectors and realizing the maximum
short term operational benefits have not been a focus
of IPAL software development. IPAL improvements, in
addition to those mentioned in preceding paragraphs,

include providing event and subsequent action inspection forms and enhancing the citation/order form. Like ILS, IPAL automates some routine data entry and permits MSHA inspectors to download inspection information from MSHA databases. Significant programming time was also spent designing a resident-edit program to correct data entry mistakes, a software feature which could have been added after more essential applications had been completed. In this regard, the IPAL software does not, to date, provide inspectors with electronic versions of many forms used routinely by the inspectors and various information retrieval applications of potential value to field operations. Increasing inspectors' participation in future software design efforts could encourage MSHA officials to prioritize the design of applications which will provide the most immediate productivity benefits to the agency.

3. *Inspector Perspectives Regarding Laptop Technology*

Although virtually all inspectors interviewed during our evaluation were enthusiastic about the potential of laptop technology to improve their productivity and professionalism, the inspectors also cited various opportunities to enhance the benefits of the laptop technology. The inspectors clearly favored the electronic citation form over the handwritten form, noting that forms completed on the laptops were far more legible and professional in appearance and both operators and DCL attorneys had expressed appreciation for the improvement. The inspectors, most of whom had little prior exposure to computers before receiving the laptops, also valued the word processing capability and the access to reference material. However, the inspectors advised us of the need for additional applications, such as access to on-line information sources, and procedures to better support MSHA's technological advances.

The fundamental complaint of inspectors regarding laptop technology was that more priority applications, particularly electronic forms were not yet available. Even with the two additional forms available in IPAL, inspectors estimated that 70 to 75 percent of their paperwork will continue to be completed manually. We

discovered that some inspectors, on their own initiative, have designed basic forms and applications which they find very useful. All inspectors could benefit from an expanded form system including not only the remaining official inspection forms issued to operators, but also the numerous internal inspection forms used by inspectors. In addition, administrative forms such as travel vouchers and time and activity reports available through the Office of the Assistant Secretary for Administration and Management(OASAM) can be easily loaded on the laptops.

More extensive surveys of the inspectors, could identify additional information resources or software applications which would improve inspection operations if available on the laptops. For example, some inspectors in District #4 have installed inexpensive software programs such as Easy Cad which they use for on-line inspection and accident investigation drawings.

Instituting a process where inspectors can share applications and communicate ideas and technology problems could better ensure that MSHA realizes maximum benefits from the agency's investment in laptop technology. An in-house electronic bulletin board or similar procedure, not currently available, could facilitate the dissemination of such information and spare inspectors from engaging in duplicate application design efforts or addressing difficulties overcome by other field offices.

The development of a policy statement expressing senior management's commitment to the use of laptop technology by the inspection divisions and procedural guidance on the intended and appropriate uses of the computers could assist in overcoming other concerns brought to our attention. In this regard, the inspectors reported that most managers and supervisors were supportive of MSHA's efforts to provide inspectors with laptop technology but some were uncertain about permissible uses. For example, some inspectors noted that their supervisor(s) prohibited them from using the laptops to expound their short-hand notes and observations from the mine inspections, requiring instead that inspectors transcribe this information in handwritten form. During the course of

our review, we did not identify any policies or instructions to supervisors or inspectors concerning the expected uses of the laptops and any program related restrictions.

4.   *Project Planning and the Future of Laptop Technology*

MSHA originally envisioned a very ambitious role for laptop computers in the field. Beyond electronic forms and basic reference material, inspectors were expected to have access to much of the vast amount of data MSHA collects from the mining industry, including ventilation, roof control, and other mine safety plans.1 From a technological perspective, such aspirations seem feasible given the increasing ability of mine operators to transmit data digitally, and the availability of scanners and optical interface software.

However, as indicated in this report, the agency is a substantial distance from achieving the original goals of the laptop program. The IPAL software package recently issued, for example, does not constitute a complete electronic form system, since a majority of MSHA's official inspection forms and numerous internal agency forms and documents used by inspectors are not available. Moreover, interviews with responsible MSHA managers and programmers indicated that there is no definitive plan regarding the next phase of IPAL development and it was not evident that MSHA officials were fully considering newer technologies that had developed since the laptop program's inception in 1994.

Improved planning is, therefore, critical to establish system development priorities for the most effective immediate use of the laptop equipment and to ensure that the program's ultimate objectives are fully realized. This process would include a thorough assessment of the technology needs, priorities and abilities of inspectors, and an examination of the programming expertise required to design future applications. Effective planning would also entail an examination of newer information technologies which our research indicates have revolutionized data collection and retrieval, including CD-ROM, Local Area

Network (LAN), and Internet technology. MSHA could also survey other government agencies to determine how they have resolved technology challenges.

<u>MSHA Response</u>

"Overall, the report is fair and constructive. The recommendations are sound and point the way to more effective use of laptop computers within MSH.A. My only concern with the report is that it tends to understate the technological problems our computer programmers have overcome and the degree to which MSHA inspectors are using laptop computers.

MSHA inspectors have already issued over 47,000 citations and orders using the pilot version of the laptop software. The early evidence suggests that the Inspectors' Portable Application for Laptops (IPAL) is a significant improvement over the pilot version and that the new application has a tremendous potential to enhance the inspection process."

<u>OIG's Conclusion</u>

We appreciate the information MSHA has provided to clarify the extent to which the laptop computers have' been used. In response to the concern that the report understated the technological problems overcome by the programmers, we have expanded the section on Software Design in the final report to incorporate additional information provided by agency officials on this issue.

III. Recommendations

We recommend that the Assistant Secretary for Mine Safety and Health:

1. Require the development of a comprehensive plan to ensure the accomplishment of all MSHA laptop technology goals, including remaining software design and other system development requirements, priorities for each action item, allocation of resources, assignment of responsibilities and timeframes for completion. In developing the plan, MSHA should:

   • Solicit direct inspector input concerning the applications to be developed and their priorities. Opportunities should be provided for

participation by inspectors in every District, for example, through the establishment of voluntary user groups comprised of those inspectors most interested in computer applications. Ensure that inspectors, programmers and project managers are encouraged to communicate regularly as system development proceeds and, if MSHA's laptop committee is retained, designate inspectors to serve on the committee.

- Reassess the basic technological assumptions and agendas that influenced ILS and IPAL. Closely scrutinize the feasibility of proposed software designs, the need for and priority of complex applications, the time and cost required and the resulting delays in developing other applications.

- Examine the solutions other Government agencies have found for resolving technology problems comparable to those posed by the laptop program. An option for conducting such a study would be a consultant with expertise in assisting Federal agencies to develop and integrate computer technology who could also lend an independent perspective to the decision making process.

MSHA Response

"I have directed senior Agency staff to develop a comprehensive plan to ensure the accomplishment of MSHA's laptop technology goals, including remaining software design and system development requirements, priorities for each action item, allocation of resources, assignment of responsibilities, and time frames for completion. The plan will be completed by June 30, 1998.

MSHA's experience deploying laptop computers has demonstrated the need to involve inspectors and enforcement supervisors more fully in setting priorities for the development of software applications they will use. To meet that need, I have instructed the Director of Program Evaluation and Information Resources to establish a steering committee of inspectors, supervisors, and computer programmers. The steering committee will provide direct input into the laptop plan by recommending priorities for

software modification, training, and future application development based on input from inspectors and supervisors.

The steering committee will assist MSHA in reassessing the basic technological assumptions and agendas that influenced the Inspectors' Laptop System and the Inspectors' Portable Application for Laptops. The committee also will examine the solutions other government agencies have found for resolving technological problems comparable to those posed by the laptop program and advise senior management on those that worked the best.

We have contracted with a computer specialist to bring an outside perspective to the process and to facilitate the deliberations of the steering committee.

Finally, I have directed senior Agency staff to establish a computer users' group in the field so that experienced users can support those with less experience. Through this process, I envision that an informal but powerful network will emerge to make this and other future technology projects at MSHA as successful as possible not only for experienced computer users but for novices as well."

OIG's Conclusions

MSHA's response and subsequent informal discussions indicate that agency officials fully concur with this recommendation and have begun to implement the agreed upon actions. For example, initial meetings between the consultant and the laptop committee have already occurred. We, therefore, consider this recommendation resolved and will close this item when we receive a copy of the agency's comprehensive plan for the completion of the laptop program.

2.   In the short term, provide inspectors with basic applications for immediate use to facilitate inspections and increase productivity, including inspection and routine administrative forms, reference materials and commercial software. Several options follow which could assist MSHA officials to accelerate the distribution of software of particular interest to the inspectors.

   •   Obtain compatible applications for DOL administrative forms from OASAM, and use form

generation or spreadsheet packages to expedite the addition of MSHA forms.

- Survey inspectors to determine additional reference material of value. Scanning this material into an electronic format could permit ready adaptation for the laptop computers.

- Survey the field offices to determine commercial software which some inspectors have installed on their laptops and consider beneficial.

MSHA Response

"*I have directed senior Agency staff to survey inspectors to identify the additional forms, reference materials, and commercial software programs which inspectors believe will facilitate their inspections and increase their productivity. The laptop steering committee will evaluate inspector suggestions and recommend the priorities for their deployment. Subject to resource constraints, MSHA will implement the forms, reference materials, and commercial . software programs that inspectors have indicated would be most beneficial in the short term.*"

OIG's Conclusions

We concur with MSHA's plan to survey the inspectors to determine additional applications of importance to them and to task the steering committee with the responsibility for recommending priorities. This recommendation is considered resolved and will be closed when MSHA provides us documentation indicating the prioritized listing of additional applications with a timetable for procurement.

3. Establish as a top priority the distribution of the laptops to inspectors who have not yet received the computers and the completion of training sessions for all inspectors.

MSHA Response

"*I have set an Agency goal of fully implementing laptop computers for all inspectors by the end of 1998. Steps are underway to complete the distribution of all available laptop computers and the IPAL software to inspectors for their regular use and to provide training in the use of the*

computers and the new software. I also have approved the purchase of enough additional laptop computers to enable every inspector to realize the benefits this technology can provide."

OIG's Conclusions

We consider the goal cited in MSHA's response to be reasonable and have resolved this recommendation. We will close this item when MSHA provides us documentation supporting that training has been completed for all inspectors.

4.   Institute a process, such as an in-house electronic bulletin board, to assist inspectors in sharing applications they have developed as well as information about commercial software programs, resource materials and solutions to laptop technology problems.

MSHA Response

"I have directed senior Agency staff to institute a process, such as an electronic bulletin board, to assist inspectors in sharing applications they have developed, as well as information about commercial software programs they have used, reference materials they have found useful, and solutions they have found to laptop technology problems."

OIG's Conclusions

MSHA's response accepts our recommendation to institute a process to facilitate the sharing of technology related information and we, therefore, consider this item resolved. We will close this recommendation when the agency provides documentation indicating the completion of this action.

5.   Provide policies and guidance to managers and inspectors concerning senior management's commitment to the automation of the inspection process as well as the intended and appropriate uses of the laptop computers and related computer technology to encourage maximum usage and clarify any program related restrictions.

MSHA Response

"I have directed senior Agency staff, with the advice of the laptop steering committee, to develop the policies and procedures necessary to demonstrate senior management's commitment to the automation of the inspection process and to provide suitable guidance to MSHA managers and inspectors regarding the intended and appropriate uses of laptop computers and related computer technology."

OIG's Conclusions

Based on the agency's agreement to develop the recommended policies and procedures, we have resolved this item and will consider it closed when MSHA provides copies of the referenced guidance materials.

As indicated in the report, all of the recommendations have been resolved on the basis of your comprehensive response to the draft memorandum. Please provide us a further response within 60 days including an update on corrective actions which have been completed and anticipated completion dates for remaining actions.

We appreciate the opportunity to assist MSHA in the automation of the inspection program as well as the substantial cooperation we have received from you and your staff during this review. Please do not hesitate to address any questions you have concerning this report to Veronica Campbell at (202) 219-8446, ext. 143.

Attachment

U.S. Department of Labor   Mine Safety and Health Administration
                           4015 Wilson Boulevard
                           Arlington, Virginia 22203-1984

02 MAR 1998

MEMORANDUM FOR   CHARLES C. MASTEN
                        Inspector General

FROM: J. DAVITT McATEER
                        Assistant Secretary for
                          Mine Safety and Health

SUBJECT: Draft Report on the Acquisition and
                        Implementation of Laptop Computer Technology

I appreciate the opportunity to review and comment on your draft
report on the acquisition and implementation of laptop computers
in the Mine Safety and Health Administration (MSHA).

Overall, the report is fair and constructive. The recommenda-
tions are sound and point the way to more effective use of
laptop computers.. within MSHPJ. My only concern with the report
is that it tends to understate the technological problems our
computer programmers have overcome and the degree to which MSHA.
inspectors are using laptop computers.

MSHA inspectors have already issued over 47,000 citations and
orders. using the pilot version of the laptop software. The
early evidence suggests that the Inspectors' Portable
Application for Laptops (IP.AL) is a significant improvement
over the pilot version and that the new application has a
tremendous potential to enhance the inspection process.

My response to each of the recommendations in the report
follows.

Recommendation 1. I have directed senior Agency staff to develop
a comprehensive plan to ensure the accomplishment of MSHA's
laptop technology goals, including remaining software design and
system development requirements, priorities for each action
item, allocation of resources, assignment of responsibilities,
and time frames for completion. The plan will be completed by
June 30, 1998.

MSHA's experience deploying laptop computers has demonstrated the need to involve inspectors and enforcement supervisors more fully in setting priorities for the development of software applications they will use. To meet that need, I have instructed the Director of Program Evaluation and Information Resources to establish a steering c6mmittee of inspectors, supervisors, and computer programmers. The steering committee will provide direct input into the laptop plan by recommending priorities for software modification, training, and future application development based on input from inspectors and supervisors.

The steering committee will assist MSHA in reassessing the basic technological assumptions and agendas that influenced the Inspectors' Laptop System and the Inspectors' Portable Application for Laptops. The committee also will examine the solutions other government agencies have .found for resolving technological problems comparable to those posed by the laptop program and advise senior management on those that worked the best.

We have contracted with a computer specialist to bring an outside perspective to the process and to facilitate the deliberations of the steering committee.

Finally, I have directed senior Agency staff to establish. a computer users' group in the field so that experienced users can support those with less experience. Through this process, I envision that an informal but powerful network will emerge to make this and other future technology projects at MSHA as successful as possible not only for experienced computer users but for novices as well.

Recommendation 2. I have directed senior Agency staff to survey inspectors to identify the additional forms, reference materials, and commercial software programs which inspectors believe will facilitate their inspections and increase their productivity. The laptop steering committee will evaluate inspector suggestions and recommend the priorities for their deployment. Subject to resource constraints, MSHA will implement the forms, reference materials, and commercial software programs that inspectors have indicated would be most beneficial in the short term.

Recommendation 3. I have set an Agency goal of fully implementing laptop computers for all inspectors by the end of 1998. Steps are underway to complete the distribution of all available laptop computers and the IPAL software to inspectors

for their regular use and to provide training in the use of the computers and the new software. I also have approved the purchase of enough additional laptop computers to enable every inspector to realize the benefits this technology can provide.

Recommendation 4. I have directed senior Agency staff to institute a process, such as an electronic bulletin board, to assist inspectors in sharing applications they have developed, as well as information about commercial software programs they have used, reference materials they have found useful, and solutions they have found to laptop technology problems.

Recommendation 5. I have directed senior Agency staff, with the advice of the laptop steering committee, to develop the policies and procedures necessary to demonstrate senior management's commitment to the automation of the inspection process and to provide suitable guidance to MSH7~ managers and inspectors regarding the intended and appropriate uses of laptop computers and related computer technology.

If you have any questions or comments about this responses please feel~6e€ to contact George Fesak on (703) 235-8378.